CLAIMS:

1. (Previously presented) An imager for imaging a subject illuminated by incident radiation, said imager comprising:

a substrate comprising a polymer;

a photosensor array disposed on said substrate, wherein said photosensor array comprises a plurality of photosensors and an addressable thin film transistor (TFT) array comprising a plurality of TFTs,

wherein each of said TFTs is electrically coupled to a respective one of said photosensors so as to selectively address respective photosensors in said photosensor array, and

wherein each of said TFTs comprises a gate electrode, a semiconductive region comprising an organic semiconductor and disposed over said gate electrode, and a source electrode and a drain electrode in contact with said semiconductive region; and

a scintillator disposed so as to receive and absorb the incident radiation, configured to convert the incident radiation to optical photons, and optically coupled to said photosensor array,

wherein said photosensor array is configured to receive the optical photons and to generate an electrical signal corresponding to the optical photons.

2. (Cancelled)

3. (Previously presented) The imager of Claim 8, wherein said substrate comprises an organic polymer.

4. (Previously presented) The imager of Claim 3, wherein said substrate comprises polyimide.

5-7. (Cancelled)

8. (Previously presented) An imager for imaging a subject illuminated by incident radiation, said imager comprising:

a substrate comprising a polymer;

a back surface layer disposed on a back surface of said substrate, wherein said back surface layer comprises a plurality of heating elements;

a photosensor array disposed on said substrate; and

a scintillator disposed so as to receive and absorb the incident radiation, configured to convert the incident radiation to optical photons, and optically coupled to said photosensor array,
wherein said photosensor array is configured to receive the optical photons and to generate an electrical signal corresponding to the optical photons.

9. (Previously presented) The imager of Claim 8, wherein said photosensor array comprises a plurality of photosensors and an addressable thin film transistor (TFT) array comprising a plurality of TFTs,
wherein each of said TFTs is electrically coupled to a respective one of said photosensors so as to selectively address respective photosensors in said photosensor array,
wherein each of said TFTs comprises a gate electrode, a semiconductive region disposed over said gate electrode, and a source electrode and a drain electrode in contact with and disposed over said semiconductive region, and
wherein each of said semiconductive regions comprises a layer of intrinsic amorphous Silicon (a-Si) and a layer of doped amorphous Silicon disposed over said layer of intrinsic a-Si.

10. (Previously presented) The imager of Claim 9, wherein said addressable TFT array is situated between said substrate and said plurality of photosensors, wherein each of said photosensors comprises an amorphous-Silicon photodiode, and wherein said imager further comprises:

a coating layer, disposed between said substrate and said addressable TFT array; and

a cover layer disposed over said scintillator.

11. (Cancelled)

12. (Previously presented) The imager of Claim 1, wherein said semiconductive region is disposed over said source and drain electrodes, wherein said plurality of photosensors is situated between said substrate and said addressable TFT array, wherein said TFTs are optically transparent, and wherein said imager further comprises a cover layer disposed over said scintillator.

13. (Previously presented) The imager of Claim 8, wherein said scintillator comprises cesium iodide.

14. (Previously presented) The imager of Claim 8, wherein said scintillator comprises a phosphor screen.

15. (Previously presented) A digital imager for imaging a subject illuminated by incident radiation, said digital imager comprising:

a substrate comprising an organic polymer and being about three (3) mils to about eight (8) mils in thickness;

a photosensor array disposed on said substrate, said photosensor array comprising a plurality of photosensors and an addressable thin film transistor (TFT) array comprising a plurality of TFTs, said photosensors being arranged to form a plurality of columns and at least one row, and each of said TFTs being electrically coupled to a respective one of said photosensors so as to selectively address respective photosensors in said photosensor array;

a scintillator disposed so as to receive and absorb the incident radiation, configured to convert the incident radiation to optical photons, and optically coupled to said photosensor array; and

a back surface layer disposed on a back surface of said substrate, said back surface layer comprising a plurality of heating elements,

wherein said photosensor array is configured to receive the optical photons and to generate an electrical signal corresponding to the optical photons.

16-17. (Cancelled)

18. (Previously presented) The digital imager of Claim 15, wherein said photosensors are arranged to form one row.

19. (Previously presented) The digital imager of Claim 15, wherein said photosensors are arranged to form a plurality of rows.

20. (Previously presented) The digital imager of Claim 15, wherein each of said TFTs comprises a gate electrode, a semiconductive region disposed over said gate electrode, and a source electrode and a drain electrode in contact with and disposed over said semiconductive region, and

wherein each of said semiconductive regions comprises a layer of intrinsic amorphous Silicon (a-Si) and a layer of doped amorphous Silicon disposed over said layer of intrinsic a-Si.

21. (Previously presented) The digital imager of Claim 20, wherein said addressable TFT array is situated between said substrate and said photosensors, each of which comprises an amorphous-Silicon photodiode, and wherein said digital imager further comprises a coating layer, which is disposed between said substrate and said addressable TFT array.

22. (Previously presented) The digital imager of Claim 15, wherein each of said TFTs comprises a gate electrode, a semiconductive region comprising an organic semiconductor and disposed over said gate electrode, and a source electrode and a drain electrode in contact with said semiconductive region.

23. (Previously presented) The digital imager of Claim 22, wherein said semiconductive region is disposed over said source and drain electrodes, wherein said plurality of photosensors is situated between said substrate and said addressable TFT array, and wherein said TFTs are optically transparent.

24-32. (Cancelled)

33. (Previously presented) A digital imaging method for imaging a subject, said digital imaging method comprising:

embedding at least one digital imager in the subject;

activating a radiation source to expose the subject to a diverging radiation beam, a portion of the subject being positioned between the radiation source and the digital imager; and

collecting an image with the digital imager.

34. (Original) The digital imaging method of Claim 33, wherein the subject comprises a section of an aircraft structure.

35. (Previously presented) The digital imaging method of Claim 34, wherein the subject comprises a fuselage, and wherein said embedding step comprises embedding the digital imager between the fuselage and an insulation layer.

36. (Previously presented) The digital imaging method of Claim 34, wherein the subject comprises an aircraft wing, and wherein said embedding step comprises embedding the digital imager within the aircraft wing.

37. (Original) The digital imaging method of Claim 33, wherein the subject comprises a section of a pipeline.

38. (Previously presented) The digital imaging method of Claim 33, wherein said embedding step comprises embedding a plurality of digital imagers in the subject.

39. (Previously presented) A linear array computer tomography (CT) scanner for imaging a subject illuminated by incident radiation , said linear array CT scanner comprising:

a substrate comprising a polymer;

a linear photosensor array disposed on said substrate, said photosensor array comprising a plurality of photosensors arranged in a row and an addressable thin film transistor (TFT) array comprising a plurality of TFTs, each of said TFTs being electrically coupled to a respective one of said photosensors so as to selectively address respective photosensors in said linear photosensor array, wherein each of said TFTs comprises a gate electrode, a semiconductive region comprising an organic semiconductor and disposed over said gate electrode, and a source electrode and a drain electrode in contact with said semiconductive region;

a scintillator disposed so as to receive and absorb the incident radiation, configured to convert the incident radiation to optical photons, and optically coupled to said linear photosensor array,

wherein said linear photosensor array is configured to receive the optical photons and to generate an electrical signal corresponding to the optical photons, and wherein each of said photosensors is oriented at a predetermined angle relative to an adjacent one of said photosensors, for alignment with the incident radiation, and wherein said substrate and said linear photosensor array are arranged in a fixed configuration.

40. (Cancelled)

41. (Previously presented) The linear array CT scanner of Claim 39, wherein said linear photosensor array and said substrate are configured to be adjustable for

arranging each of said photosensors at a predetermined angle relative to an adjacent one of said photosensors.